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10/507,188	09/10/2004	Noboru Kondo	TAKIT-0190	8961

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EXAMINER	
HIGGINS, GERARD T	
ART UNIT	PAPER NUMBER
4174	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/507,188	KONDO ET AL.	
	Examiner	Art Unit	
	GERARD T. HIGGINS	4174	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,6,8-10 and 12-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,6,8-10 and 12-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/10/007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "said amount of polyvinyl alcohol in the binder" in line 2 of claim 6. There is insufficient antecedent basis for this limitation in the claim. Applicants have not disclosed in claims 1 or 5 that the polyvinyl alcohol is contained in the binder.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 5, 6, 8, 9, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitamura et al. (US PGPub 2001/0016249).

Kitamura et al. teach an "Ink Jet Recording Material" (Title) made by "forming a recording stratum containing fine particles of a specific pigment comprising at least one member selected from silica, alumninosilicate and α-, θ-, δ- and γ-aluminas on the substrate" [0089]. Kitamura et al. teach that the paper sheet for the substrate is "mainly formed from a wood pulp" this wood pulp "include[s] mechanical pulps, chemical pulps and re-used paper pulps" [0132], which read onto applicants' "substrate having air permeability" (applicants' claim 1). Applicants define in their disclosure different substances that they deem appropriate types of air-permeable supports (page 5, line 7-17). Kitamura et al. also disclose that the recording stratum contains "a binder" wherein the "binder comprises at least one member selected from water-soluble polymers, for example, polyvinyl alcohol" [0143]. Kitamura et al. also teach that the recording material "preferably contains an image light resistance-enhancing agent comprising at least one member selected from the group consisting of phenolic compounds, boric acid, borate salts and cyclodextrin compounds" [0165]. They further teach that "[m]ore enhanced light resistance…can be obtained by using chlorides of divalent [metals] (sic) especially, magnesium chloride or calcium chloride" [0170]. These teachings encompass all of the article limitations of applicants' claim 1. Applicants' also seek to define their article by the process in which it was made. Applicants' claim 1, lines 4-8 states that the treatment solution "solidifies said polyvinyl alcohol on the recording

layer…and drying so as to confer gloss to said recording layer surface," which is a product-by-process limitation. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. Please see MPEP 2113 and *In re Thorpe*, 777F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

The teachings of Kitamura et al. mentioned above also anticipate the limitations of applicants' claim 3, wherein a magnesium chloride salt is used. Additionally, Kitamura et al. further define the meaning of borate salts or boric acid by disclosing the possibility of using "tetraborate salts," where the "salt-forming metals include alkali metals, for example, sodium and potassium, and alkaline earth metals, for examples, calcium[,] magnesium and barium" [0171]. Sodium tetraborate is borax; therefore these teachings anticipate the invention as claimed in applicants' claim 8. Kitamura et al. also disclose in their Example II-14 that the borax containing solution used to impregnate the ink receiving outermost layer was an "aqueous solution of 4% by dry solid weight or borax" [0447]. This anticipates applicants' claims 2 and 9, which are directed to using a treating solution containing a set percentage of borate, either 0.4-6 wt% or 0.5-4.5 wt% respectively.

Kitamura et al. further teach that the recording stratum is "preferably formed in a total amount of 1 to 100 g/m^2, more preferably 2 to 50 g/m^2" [0146]. This anticipates applicants' claimed coating amount in claim 15.

Kitamura et al. also teach that there is a "specific limitation to the solid weight ratio of the pigment to the binder," the solid weight ratio (pigment to binder) is

"preferably adjusted within the range of 100/2 to 100/200, more preferably from 100/5 to 100/100" [0144]. In the next paragraph Kitamura et al. disclose that the water-soluble polymer binder is "preferably 20 parts by weight or less per 100 parts by weight of the pigment" [0145]. This anticipates applicants' claim 5.

With regard to applicants' claim 6, Kitamura et al. teach at [0143] that the binder comprises "at least one member selected from water-soluble polymers, for example, polyvinyl alcohol." They also recognize that the binders mentioned may be used alone or in a mixture of two or more. If polyvinyl alcohol was solely used that would anticipate applicants' claim 6.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 12, 13, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al. (US PGPub 2001/0016249).

As mentioned previously Kitamura et al. disclose several methods to enhance the light resistance of the recording material. They mention using borate salts to accomplish this, specifically using "tetraborate salts," where the "salt-forming metals include alkali metals, for example, sodium and potassium, and alkaline earth metals, for

examples, calcium[,] magnesium and barium" [0171]. Also, Kitamura et al. disclose in Example II-14 that a borax containing solution used to impregnate the ink receiving outermost layer was an "aqueous solution of 4% by dry solid weight or borax" [0447]; however, Kitamura et al. fail to teach an inkjet recording medium wherein the concentration of the water-soluble magnesium salt is 0.5-6 wt% in terms of anhydride. It is entirely possible to replace the sodium cation in borax with a magnesium cation since they are functional equivalents as disclosed by Kitamura et al. Subsequently, a 4% by dry solid weight of the magnesium tetraborate would dissociate in solution to form 4% magnesium cation and 4% tetraborate. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the sodium cation of borax with a magnesium cation, which would then render obvious applicants' claim 12.

Kitamura et al. disclose a releasing agent, lecithin in their "Coating liquid II-(17)." This releasing agent is heated by a "casting drum at a peripheral surface temperature of 85° C," which allows the layer to be more easily peeled from the casting drum [0477-8]. However, Kitamura et al. fail to teach a releasing agent with a melting point of 90-150° C. There are numerous releasing agents available in the art that melt at certain temperatures. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to choose an appropriate releasing agent for the claimed recording medium such that the releasing agent would melt in the range of 90-150° C.

Finally, Kitamura et al. disclose the method of applicants' claim 16 in the description of the related art. They reveal that a "cast-coated paper sheet produced by contacting a wetted coating layer of the recording sheet with a mirror-finished peripheral surface of a heating drum under pressure, and drying the coating layer to transfer the mirror-like surface to the coating layer surface, is known" [0021] to [0023].

Calendering or heating under pressure is clearly a well-known method of making paper as it is seen in the description of related art of Kitamura et al. As such it would have been obvious to one having ordinary skill in the art at the time the invention was made to use this technique to improve the base device of Kitamura et al.; furthermore, the results of this improvement would have been predictable to one of ordinary skill in the field of papermaking. Specifically, Kitamura et al. recognize that such a treatment would impart high gloss and increased smoothness to the ink jet recording media [0023].

7. Claims 10, and 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al. (US PGPub 2001/0016249) in view of Yoshida et al. (JP2002-283697), (JP2002-293004), or (WO 02/076756) all members of the same patent family.

Kitamura et al. as described above (section 8) teach that the recording material "preferably contains an image light resistance-enhancing agent comprising at least one member selected from the group consisting of phenolic compounds, boric acid, borate salts and cyclodextrin compounds" [0165]. However, Kitamura et al. fail to teach the

specific ratio range of boric acid and a borate salt in applicants' claim 10. Yoshida et al. (JP2002-283697) disclose using a solution of "way acid chloride and a way acid" in a ratio of 0.25/1 - 2/1 [0014]. Judging by the US patent family equivalent of these documents, which does not fall under the auspices of prior art, by "way acid" Yoshida et al. mean boric acid. It would have been obvious to one having ordinary skill in the art at the time the invention was made to alter the invention as shown in Kitamura et al. to include boric acid and a borate salt in a specific ratio as presented by Yoshida et al.

With regard to applicants' claims 13 and 14, Kitamura et al. as described above (section 10) disclose a releasing agent, lecithin in their "Coating liquid II-(17)." This releasing agent is heated by a "casting drum at a peripheral surface temperature of 85° C," which allows the layer to be more easily peeled from the casting drum [0477-8]; however, Kitamura et al. fail to teach a releasing agent with a melting point of 90-150° C.

Yoshida et al. disclose using a remover in the recording layer that has a melting point of 90-150° C [0016]; furthermore, there are numerous releasing agents available in the art that melt at certain temperatures. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make a simple substitution of the known releasing agent in Kitamura et al. for another as shown by Yoshida et al., the predictable result being the invention as claimed in applicants' claims 13 and 14.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1-3, 5, 6, 8-10, 12-16 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 7-13, 15-17, 19, and 20 of U.S. Patent No. 7,033,016 in view of Kitamura et al. (US PGPub 2001/0016249). Although the conflicting claims are not identical, they are not patentably distinct from each other because they describe an article made from a substrate, a binder, a borate/boric acid mixture with a specific ratio, and a remover. Equally, it describes the percentage of binder in the recording layer as well as the ratio of binder to pigment. Finally, it describes the melting temperature used with respect to the remover compound; however, it fails to describe a magnesium salt.

Kitamura et al. disclose that a magnesium chloride salt may be used with a phenolic compound, which can be further combined with a boric acid ***and*** borate; further, it would have been obvious to one having ordinary skill in the art at the time the

invention was made to combine a magnesium chloride salt of Kitamura et al. as an anti-yellowing agent in the present invention. The results of this combination would have been predictable to one having ordinary skill in the art; furthermore, one of ordinary skill would have recognized that each of the elements in combination would have performed the same function in combination as they had separately.

Response to Arguments

10. Applicant's arguments, see page 7, lines 17 to page 8, line 1, filed November 20th, 2007, with respect to the Information Disclosure Statement, Specification, claim objections, and the rejections made under 35 U.S.C. 112 of claims 5, 6, 9, 10, 14, and 15 have been fully considered and are persuasive. The relevant objections/rejections of the information disclosure statement, specification, claim objections, and the rejections made under 35 U.S.C. 112 of claims 5, 6, 9, 10, 14, and 15 have been withdrawn.

11. Applicant's arguments filed November 20th, 2007 with respect to claims 1-3, 5, 6, 8-10, and 12-15 have been fully considered but they are not persuasive.

With regard to applicants' arguments on page 8, lines 3-25, concerning the rejection seen in section 2 above, applicants state that Kitamura et al. do not teach a "treatment solution contain[ing] a boric acid, a borate, and a water-soluble magnesium salt" simultaneously, the Examiner respectively disagrees. Kitamura et al. teach "at least one member…" this language specifically teaches that multiple members of this group may be used ***in combination***; furthermore, applicant is correct in arguing that the

magnesium chloride salts are associated with the phenolic compounds; however, considering the fact that "at least one member…" teaches that the phenolic compounds may be used in combination with borate salts ***and*** boric acid, this necessarily implies that the magnesium chloride salts may be used in combination with phenolic compounds, which subsequently can be combined with borate salts ***and*** boric acid.

With regard to applicants' argument on page 8, lines 26-30, it has been held that "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself." Please see MPEP 2113 and *In re Thorpe*, 777F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985); furthermore, it has been held that "[o]nce the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product." Please see *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). The product of Kitamura et al. anticipates all of the claimed structural limitations of applicants' claims, and therefore the rejection stands.

With regard to applicants' arguments on page 9, line 10 to page 10, line 3, once again applicants' are arguing that Kitamura et al. do not teach using the components of the treatment solution in combination. The Examiner has treated this argument above. Applicants are also arguing that the intended use of the boric acid, borate, and magnesium salt is different from the prior art, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention

and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

With regard to applicants' assertion on page 9, lines 18-20, Kitamura et al. teach at [0171] that the salt forming metals of the borate salts include sodium and magnesium; furthermore, the Examiner is suggesting replacing the ***sodium cation*** of the borate salt with a ***magnesium cation***. One of ordinary skill in the art would recognize that the magnesium cation of the salt would continue to function in its ability as an anti-yellowing agent because it is extremely well-known that alkali and alkaline earth metals function as quenchers. Quencher molecules are known to scavenge radicals as well as deactivate excited-state molecules, both of which would be the culprits for producing the yellowing effect in paper.

With regard to applicants' arguments on page 10, lines 6-23, once again applicants' are arguing that Kitamura et al. do not teach using the components of the treatment solution in combination. The Examiner has treated this argument above.

With regard to the exemplification of polyvinyl alcohol, applicants' amendment to claim 6 clarified the meaning of claim 6, and hence allowed the Examiner to fully treat the claim. Please see section 2 above. Additionally, applicants are also arguing that the intended use of the boric acid, borate, and magnesium salt is different from the prior art, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably

distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

12. Applicant's arguments with respect to claim 16, on page 8, line 30 to page 9, line 3 have been considered but are moot in view of the new ground(s) of rejection. Please see section 4 above.

With regard to applicants' arguments concerning the method of production of the ink jet recording medium, applicants are correct in pointing out that the method of production used for the specific compounds mentioned in the 35 U.S.C. 102 rejection was a dye coater; however, in light of the new 35 U.S.C. 103 rejection applicants' arguments are considered moot.

13. Applicant's arguments, see page 10, lines 26-29, filed November 20th, 2007, with respect to the rejection(s) of claim(s) 1-3, 5, 6, 8-10, and 12-15 under the grounds of nonstatutory obviousness-type double patenting of U.S. Patent No. 7,033,016 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made of nonstatutory obviousness-type double patenting of U.S. Patent No. 7,033,016 in view of Kitamura et al. (US PGPub 2001/0016249). The explanation of the rejection is set forth in section 7 above.

14. Applicant's arguments, see page 10, line 30 to page 11, line 4, filed November 20th, 2007, with respect to claims 1-3, 5, 6, 8-10, 12-16 have been fully considered and are persuasive. The rejection of claims 1-3, 5, 6, 8-10, 12-16 with respect to Application No. 10/509,371 has been withdrawn.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please see PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERARD T. HIGGINS whose telephone number is (571)270-3467. The examiner can normally be reached on M-F 7:30am-5pm est. (1st Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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